	Application No.	Applicant(s)
Office Action Summary	10/808,688	GOMI ET AL.
	Examiner	Art Unit	
	Kent Wang	2622	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>24 July 2007</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-17</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-17</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>06 June 2005</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

    1. ☒ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____.

    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date ~~1234567~~.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election without traverse of the second species of Figs 7-10 in the reply filed

on July 24, 2007 is acknowledged. Claims 1-17 will be examined.

Priority

2. Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), which paper has

been placed of record in the file.

Information Disclosure Statement

3. The references listed on the information disclosure statement (IDS) submitted on 12/02/2004

have been considered by the examiner (see attached PTO 1449).

Specification

4. Claims 4, 5, 7, 8, 9, and 16 are objected to because of the following informalities:

The specification is objected to as failing to provide proper antecedent basis for the

claimed subject matter. Examiner has carefully reviewed the descriptive portion of the

specification and still failed to locate any mention of the alleged claim terms "...same

color phase of color phase codings defined by the color filters..." as stated in claims 4, 5,

and 16. Examiner also was unable to find any mention of another alleged claim term

"...different chrominance signals" as stated in claims 7, 8, and 9. The Applicant is kindly

asked ~~the Applicant~~ to explain where the nomenclature "<u>same color phase of color phase</u>

<u>codings defined by the color filters</u>" and "<u>different chrominance signals</u>" are locate or

suggest explain the alleged claim nomenclatures. See 37 CFR 1.75(d)(1) and MPEP

§ 608.01(o). Correction of the following is required: the meaning of nomenclature "<u>same</u>

<u>color phase of color phase codings defined by the color filters</u>" in claims 4, 5, 16 and

"<u>different chrominance signals</u>" in claims 7, 8, 9 should be apparent from the descriptive

portion of the specification with clear disclosure as to its import. Claims 4, 5, 7, 8, 9, and

16 will be rejected as best understood by the Examiner.

5.   The title of the invention is not descriptive. A new title is required that is clearly indicative

of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohzu, US

2002/0167601.

Regarding claim 1, Ohzu discloses solid-state image sensing apparatus (photoelectric

transducer apparatus, Fig 1) having a plurality of output channels, wherein a first driving

mode (two output lines for readout, 39-1, 39-2, Fig 5) and a second driving mode (four

output lines for readout, 39-1, 39-2, 39-3, 39-4, Fig 9) in which pixel signals of pixels in the

same image sensing area are read out can freely be set, and control (a control circuit 200, Fig

10) is executed to change the number of output channels to be used between the first driving

mode (two output lines for readout) and the second driving mode (four output lines for

readout) ([0176], [0197]-[0198] and Figs 5 and 9).

Regarding claim 2, Ohzu discloses that at least one of the first driving mode (two output

lines for readout, Fig 5) and the second driving mode (four output lines for readout, Fig 9), a

phase of a read timing of pixel signals of pixels adjacent (readout signals stored in the

capacitors C2 to Cn are sequentially read out) in a horizontal direction is shifted by a

predetermined amount (the signal are output at timings of the shift pulses □h1 to □hn)

([0211], [0212]).

Regarding claim 3, Ohzu discloses wherein in the first driving mode (two output lines for

readout, Fig 5), signals of two pixels adjacent in a horizontal direction are output in parallel

(simultaneously accessed) from two output channels (output lines 39-1 and 39-2 for read out

the stored voltages), and in the second driving mode (four output lines for readout, Fig 9),

signals of 2x2 pixels adjacent in the horizontal direction and a vertical direction (B, G from

row 31 and first two columns and G, R from row 31' and first two columns, Fig 9) are output

in parallel from four output channels (output lines 39-1, 39-2, 39-3, and 39-4 for read out the

stored voltages), respectively ([0175], [[0197], and [0198]).

Regarding claim 4, Ohzu discloses a solid-state image sensing apparatus having color

filters with a predetermined array (color filters are formed on sensor cells, [0187]) and a

plurality of output channels (four output lines, [0197]), wherein pixel signals of pixels in the

same color phase of color phase codings defined by the color filters are output in parallel

from the same output channels (R and G filters in an order of R, G, R, G, ... are formed on

photoelectric transducer elements of the even-numbered rows, and G and B filters in order of

G, B, G, B, ... are arranged in odd-numbered rows and also R- and G-dot sequential signal

OUT1 and G- and B-dot sequential signal OUT2) while changing the number of output

channels ([0336], [0341]).

Regarding claim 5, Ohzu discloses a solid-state image sensing apparatus having color

filters with a predetermined array (color filters are formed on sensor cells, [0187]), a plurality

of output channels (four output lines, [0197]), an X-address register (horizontal shift register

46, Fig 7), and a Y-address register (vertical shift register 32, Fig 7), wherein the X-address

register and the Y-address register are controlled so as to, for pixels in one of an entire image

sensing area (for example, complete matrix area) and a block area (for example, row 31, 31',

31", ...), parallelly read out pixel signals of pixels having the same color relationship in color

phase codings defined by the color filters continuously or discretely from the same output

channels in accordance with a control signal while changing the number of output channels

(see discussion claim 4 above and [0336], [0341]).

Regarding claim 6, Ohzu discloses solid-state image sensing apparatus having four output

channels, wherein one of two-system parallel outputs for a pair of colors (color filters R, G,

B are arranged according to the Bayer's scheme, [0187] and Fig 6), which uses two of the

output channels, and single-color four-system parallel outputs using the four output channels

is set (sequentially output to the readout circuits R1 to Rn, so that an R- and G-dot sequential

signal OUT1 and G- and B-dot sequential signal OUT2), and control (control circuit 200) is

executed to read out pixel signals of pixels in an arbitrary area of an entire image sensing

range continuously or discretely in a predetermined direction while changing the number of

output channels (referring to Fig 10, a driving pulse is applied from the control circuit to

capacitor electrodes of photoelectric transducer cells and control circuit supplies a driving

pulse of each terminal) ([0205]-[0209]).

Regarding claim 7, Ohzu discloses the read timings of the pixel signals output in parallel

from said plurality of output channels have a phase shift for at least one pair of different

chrominance signals (R and G filters in an order of R, G, R, G, ... are formed on

photoelectric transducer elements of the even-numbered rows, and G and B filters in order of

G, B, G, B, ... are arranged in odd-numbered rows) ([0341]).

Regarding claims 8 and 9, these claims are recited same limitations as claim 7. Thus they

are analyzed as previously discussed with rejected to claim 7 above.

Regarding claim 10, Ohzu discloses the color filters having a Bayer matrix (a Bayer's

scheme, [0187]).

Regarding claims 11 and 12, these claims are recited same limitations as claim 10. Thus

they are analyzed as previously discussed with rejected to claim 7 above.

Regarding claim 13, Ohzu discloses method of parallelly reading out image data from a

plurality of output channels (four output lines, Fig 9) of a solid-state image sensing apparatus

(photoelectric transducer apparatus, Fig 1) having photoelectric conversion units

(photosensor cells 100, Fig 1) arranged in a two-dimensional array (two-dimensional matrix,

Fig 5) and a plurality of output channels (four output lines, Fig 9), comprising

- assigning said plurality of output channels (four output lines, Fig 9) in accordance

   with an externally input control signal (pulses □h1 and □h2 are external control

   signals applied to drive the photosensors for Vout readout operation, [0230]-

   [0233] and Fig 16A),

- sequentially addressing the photoelectric conversion units (sequentially turned on

   the FETs according to the shift timings and then sequentially readout onto the

   scanning circuit, [0134]-[0135]),

- transferring to said plurality of assigned output channels pixel signals output from

   the addressed photoelectric conversion units (readout signals from the cell are

   sequentially output to output lines, [0182]), and

- outputting in parallel image signals from said plurality of assigned output

   channels at timings having a predetermined phase difference (a predetermined

   period of time has elapsed the voltage applied to the driving terminal is set

   therefore the signals were outputted to output channels, [0163]-[0166]).

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

   rejections set forth in this Office action:

   (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
   section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
   such that the subject matter as a whole would have been obvious at the time the invention was made to a person
   having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
   manner in which the invention was made.

9. Claims 14-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohzu in view

of Yoneda (US 6,952,228).

As for claim 14, Ohzu disclosed a solid-state image sensing apparatus comprising:

- a horizontal scanning circuit (horizontal scanning circuit 13, Figs 4-5) which

  outputs a horizontal selection signal ([0164]-[0165], Ohzu);

- horizontal selection switches (switches SW1 to SWn, Fig 16A) which are driven

  and controlled by the horizontal selection signal ([0230]-[0231], Ohzu); and

- output channels which read out the pixel signals through the horizontal selection

  switches (output terminals of the amplifiers A1 to An are connected to an output

  line 101A through corresponding transistors T1 to Tn) ([0230]-[0231] and Fig

  16A, Ohzu),

- wherein a first driving mode (two output lines for readout, 39-1, 39-2, Fig 5) and

  a second driving mode (four output lines for readout, 39-1, 39-2, 39-3, 39-4, Fig

  9) in which pixel signals of pixels in the same image sensing area are read out can

  freely be set, and control (a control circuit 200, Fig 10) is executed to change the

  number of output channels to be used between the first driving mode (two output

  lines for readout) and the second driving mode (four output lines for readout)

  ([0176], [0197]-[0198] and Figs 5 and 9).

Ohzu does not explicitly disclose the solid-state image sensing apparatus comprising a

vertical scanning circuit, transfer switches, and line memories.

Yoneda discloses the solid-state image sensing apparatus comprising:

- a photoelectric conversion unit (photoelectric conversion elements) in which a plurality of pixels are two-dimensionally arrayed (col. 9, lines 24-42, Yoneda);

- a vertical scanning circuit (vertical shift register 906a, 906b, Fig 4) which selects pixels of the photoelectric conversion unit (col. 4, line 23 to col. 5, line 2, Yoneda);

- transfer switches (transfer switches 922, Fig 5) each of which is arranged at one of one end and other end of a corresponding one of output signal lines running from the pixels and driven and controlled by a transfer signal which is commonly input to alternate columns (col. 5, lines 11-22, Yoneda);

- line memories (line memory 910, Fig 4) which store pixel signals transferred from the pixels through the transfer switches (col. 4, line 23 to col. 5, line 2, Yoneda);

It would have been obvious to a person of the ordinary skill in the art to use Yoneda's vertical scanning circuit, transfer switches, and line memory in Ohzu's solid state image pickup device in order to obtain an image with less shading (col. 2, lines 42-43, Yoneda).

Regarding claim 15, this claim recites same limitations as claim 2. Thus it is analyzed and rejected as previously discussed with respect to claim 2 above.

Regarding claim 16, this claim recites same limitations as claims 4 and 14 combined. Thus it is analyzed and rejected as previously discussed with respect to claims 4 and 14 above.

Regarding claim 17, this claim recites same limitations as claim 6. Thus it is analyzed and rejected as previously discussed with respect to claim 6 above.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

- Lee (US 7,129,979) discloses a pixel architecture which provides a plurality of output

  channels formed such that each of the output channels are operatively connected to a

  subset of pixels wherein each of the pixels have an attribute that is the same.

- Decker et al (US 2002/0154231) discloses an image sensor wherein each column

  readout line is selectively coupled to an output of a respective pixel of the first type

  that is included in the row of pixels, and each array readout line is selectively coupled

  to at least one of the column readout lines.

- Bell et al. (US 7,106,372) discloses a pixel sensor array having a set of pixel sensors

  arranged in a set of rows and a set of columns which enables the balancing of the

  separate color channels within a sensor through the use of variable integration times

  for each color channel.

- Lee et al. (US 6,466,265) discloses an active pixel sensor formed by creating an X-Y

  array of pixels on a semiconductor substrate which is functionally divided to enable

  the addressing and reading out of a plurality of pixels simultaneously by providing

  areas, each of the areas having a row addressing circuit and a column addressing
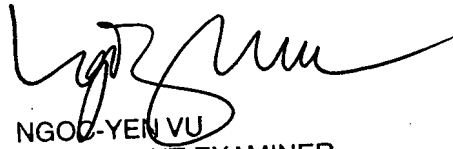
  circuit.

Inquiries

11. Any inquiry concerning this communication or earlier communications from the examiner

    should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner

    can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

    If attempts to reach the examiner by telephone are unsuccessful, the examiner's

    supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the

    organization where this application or proceeding is assigned is 571-270-8300.

    Information regarding the status of an application may be obtained from the Patent

    Application Information Retrieval (PAIR) system. Status information for published

    applications may be obtained from either Private PAIR or Public PAIR. Status information

    for unpublished applications is available through Private PAIR only. For more information

    about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access

    to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

    (toll-free). If you would like assistance from a USPTO Customer Service Representative or

    access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or

    571-272-1000.

KW
27 August 2007

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER